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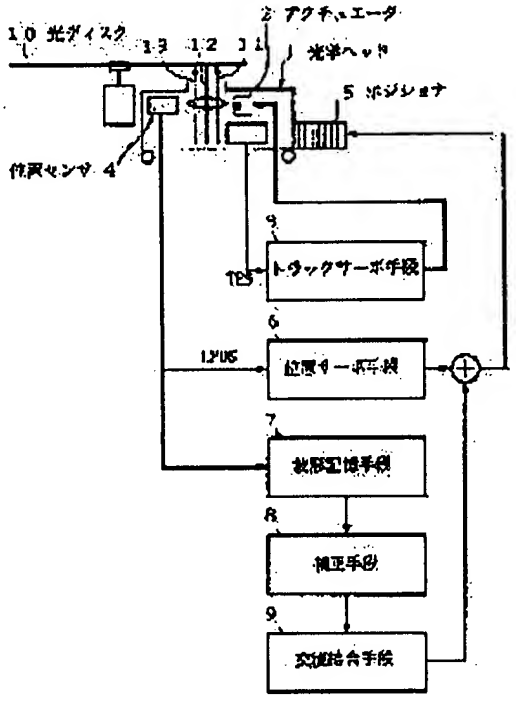
(54) ECCENTRICITY CORRECTING CIRCUIT OF OPTICAL DISK DEVICE

(57)Abstract:



PURPOSE: To easily perform the decentering correction to remove the influence of the direct current off-set included in the decentering detecting information concerning the decentering correcting circuit of an optical disk device to detect and store beforehand the track decentering quantity of an optical disk, read the storing decentering quantity at the time of the on-track control and at the time of the seek control and control an optical head so as to cancel the decentering quantity by a positioner.

CONSTITUTION: A decentering detecting signal for one rotation of a disk outputted from a position sensor 4 in the ON condition of a track servo means 3 is synchronized to the disk rotation and stored in a waveform storing means 7. At the on-track time and at the positioner seek time, the decentering detecting signal stored in the waveform storing means 7 is synchronized to the disk rotation and read. So as to cancel the detected decentering part, it is added to the positioner driving signal of a position servo means 6 and corrected 8. An alternating current linking means 9 to remove the direct current off-set of the decentering information signal read from the waveform storing means 7 and add it to the position servo means 6 is provided.

LEGAL STATUS

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CLAIMS

[Claim(s)]
[Claim 1] A truck servo means 3 to drive the actuator 2 carried in the optical head 1 based on the truck error signal, and to control a beam in an on-truck location, The positional-servo means 6 which drives a positioner 5 based on the location detecting signal of said actuator 2 detected by the position sensor 4, and carries out position control of said optical head 1, A wave storage means 7 to memorize the eccentric detecting signal for the disk 1 rotation outputted from said position sensor 4 synchronizing with disk rotation by the on-truck control state by said truck servo means 3, The eccentric detecting signal memorized for this wave storage means 7 is synchronized with disk rotation. Read-out, In the eccentric amendment circuit of the optical disk unit equipped with an amendment means 8 to amend in addition to the positioner driving signal of said positional-servo means 6 so that a part for the detected eccentricity may be offset The eccentric amendment circuit of the optical disk unit characterized by establishing the AC-coupling means 9 which removes the direct-current-offset component of the eccentric information signal read from said wave storage means 7, and is added to said positional-servo means 6.
[Claim 2] It is the eccentric amendment circuit of the optical DIKUSU equipment characterized by said amendment means 8 performing eccentric amendment in the eccentric amendment circuit of an optical disk unit according to claim 1 at the time of the on-truck control by said truck servo means 3, and the seeking control by said positional-servo means 6.
[Claim 3] It is the eccentric amendment circuit of the optical disk unit which said optical head 1 irradiates 3 beams at coincidence at an optical disk 10 in claim 1 and the eccentric amendment circuit of an optical disk unit according to claim 2, uses one beam as the elimination beam 11, uses other one beam as the write-in beam 12, uses one beam 13 of further others as a playback beam, and is characterized by performing playback for elimination, writing, and a write-in check by disk 1 rotation.
[Claim 4] A truck servo means 3 to drive the actuator 2 carried in the optical head 1 based on the truck error signal, and to control a beam in an on-truck location, The positional-servo means 6 which drives a positioner 5 based on the location detecting signal of said actuator 2 detected by the position sensor 4, and carries out position control of said optical head 1, A wave storage means 7 to memorize the eccentric detecting signal for the disk 1 rotation outputted from said position sensor 4 synchronizing with disk rotation by the on-truck control state by said truck servo means 3, The eccentric detecting signal memorized for this wave storage means 7 is synchronized with disk rotation. Read-out, In the eccentric amendment circuit of the optical disk unit equipped with an amendment means 8 to amend in addition to the positioner driving signal of said positional-servo means 6 so that a part for the detected eccentricity may be offset The eccentric amendment circuit of the optical disk unit characterized by establishing the AC-coupling means 9 which removes a part for the direct current offset contained in the eccentric information signal outputted from said position sensor 4, and said wave storage means 6 is made to memorize.
[Claim 5] It is the eccentric amendment circuit of the optical DIKUSU equipment characterized by said amendment means 8 performing eccentric amendment in the eccentric amendment circuit of an optical

disk unit according to claim 4 at the time of the on-truck control by said truck servo means 3, and the seeking control by said positional-servo means 6.
[Claim 6] It is the eccentric amendment circuit of the optical disk unit which said optical head irradiates 3 beams at coincidence at an optical disk in the eccentric amendment circuit of an optical disk unit according to claim 4, uses one beam as the elimination beam 11, uses other one beam as the write-in beam 12, uses one beam of further others as the playback beam 13, and is characterized by performing playback for elimination, writing, and a write-in check by disk 1 rotation.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] The truck eccentricity of an optical disk is detected beforehand, and this invention memorizes it, and relates to the eccentric amendment circuit of the optical disk unit controlled to read storage eccentricity at the time of on-truck control and seeking control, and to offset eccentricity for an optical head by the positioner. There is eccentricity resulting from the dimension error when equipping the bending at the time of manufacture and a revolving shaft etc. in the truck of an optical disk. Then, position control of the optical head is carried out by the VCM positioner so that read-out and eccentricity may be offset for the eccentric information which detected and memorized the eccentric information for DIKUSU 1 rotation, and was memorized on the occasion of on-truck control or seeking control, and he is trying for disk eccentricity not to influence control of the lens actuator which controls the current beam position carried in the optical head.
[0002] However, in the optical disk unit of 3 beam methods which perform playback for elimination, writing, and a write-in check by disk 1 rotation, since three beams are irradiated in the location where it differs on a truck, at least two lens actuators are carried, and it comes to move the lens which was prepared in the lens actuator for this reason in the location from which it separated from the center line passing through a disk core.
[0003] For this reason, also in the state of the on-truck of a beam without eccentricity, a lens actuator will be in the condition of having inclined slightly from the center valve position, and offset will be included in a signal from a position sensor. On the other hand, storage of eccentric information made the lens actuator follow the eccentricity of a truck by having made the beam into the on-truck condition, and has memorized the detecting signal outputted from the position sensor of a lens actuator in this condition as eccentric information.
[0004] However, in the case of 3 beam methods, since the lens actuator already leans in the state of the on-truck, even if eccentricity is zero, the location detecting signal of a certain level has arisen as offset, there is a possibility of causing a control error by on-truck control or seeking control if amendment using eccentric positional information including this offset is performed, and an improvement of this point is desired.
[0005]
[Description of the Prior Art] The invention-in-this-application person etc. has proposed the thing of drawing 3 as an eccentric amendment circuit in the optical disk unit of 3 beam methods. In drawing 3 , the optical head 1 can control the current beam position relatively on the optical head 1 with the lens actuator which position control was carried out by the VCM positioner 5, and was carried in the optical head 1. The location of the lens actuator carried in the optical head 1 is detected by the position sensor. An optical disk 10 is a rewritable magneto-optic disk, and is rotating with the spindle motor 14.
[0006] The truck servo circuit 3 consists of a phase compensating circuit 15, a servo switch 16, and power amplification 17. After giving the truck error signal TES created from the light-receiving signal of the return light of a beam to an optical disk 10 to the phase compensating circuit 15, giving leading

phase compensation which raises high region gain and carrying out power amplification with power amplification 17 through the servo switch 16, the drive coil of the lens actuator carried in the optical head 1 is supplied, and a beam is controlled in an on-truck location.
[0007] The servo switch 16 is turned on by MPU18 at the time of an on-truck, and it switches off at the time of seeking. The positional-servo circuit 6 consists of the phase compensating circuit 19, a servo switch 20, a summation point 21, and power amplification 21. After inputting the location detecting signal LPOS from the position sensor which detects the location of a lens actuator established in the phase compensating circuit 19 at the optical head 1 and giving phase compensation, power amplification is carried out with power amplification 22 through the servo switch 20 and a summation point 21, the VCM positioner 5 is driven and position control of the optical head 1 is carried out.
[0008] On the other hand, the wave store circuit 7, the phase compensating circuit 23, and the servo switch 24 are formed for eccentric amendment of an optical disk 10. Only the time amount for disk 1 rotation makes the wave store circuit 7 memorize an eccentric detecting signal at the time of the standup of equipment etc. Namely, the servo switch 20 is made off, the position control of the optical head 1 by the VCM positioner 5 is suspended, and it fixes, and in this condition, by making the truck servo circuit 3 into operating state, a lens actuator is moved from ON of the servo switch 16 so that the on-truck of the beam may be carried out and it may be made to follow.
[0009] Moreover, since there is the flattery remainder in a lens actuator also considering the servo switch 20 as ON when the optical head position control band by the VCM positioner is low, storage of eccentricity is possible. A motion of a lens actuator is detected by the position sensor, and is memorized to the wave store circuit 7 synchronizing with rotation of a spindle motor 14 as an eccentric detecting signal for the time amount equivalent to disk 1 rotation.
[0010] That is, incorporation of eccentric information is performed by a spindle start command, the go home command, etc., and the truck servo circuit 3 is in an ON state, and wave storage is performed by asserting the write enable signal WE. . If storage of the eccentric detecting signal to the corrugating circuit 7 ends, after giving phase compensation for the wave store circuit 7 to an eccentric detecting signal by turning on the servo switch 24 in read-out and the phase compensating circuit 23 synchronizing with rotation of a spindle motor 14, in addition to the summation point 21 prepared in the positional-servo circuit 6 through the servo switch 24, the driving signal over VCM POSHIJONA 5 will be amended.
[0011] Read-out of the wave store circuit 7 is read synchronizing with spindle rotation, where assertion of the write enable signal WE is canceled. Position control is carried out so that the eccentricity to which the VCM positioner 5 detected the optical head 1 by this eccentric amendment may be followed. Consequently, the beam from the lens actuator of the optical head 1 Even if eccentricity is in the truck of an optical disk 1, the motion which followed eccentricity will be carried out, if it sees from a lens actuator and there is no eccentricity in operation, the same condition will be acquired, the control precision of on-truck control improves, and drawing in on the target truck at the time of seeking control can be performed for a short time.
[0012] In addition, the positioner double servo which turns on the servo switch 20 by the ON state of the truck servo circuit 3, and hangs position control on coincidence can also perform eccentric ******, and can improve the control precision of on-truck control further. Furthermore, the signal from DA converter 25 is added to the summation point 21 of the positional-servo circuit 6. That is, DA converter 25 outputs the rate error signal which MPU18 set up at the time of positioner seeking to a summation point 21, and controls the speed in the VCM positioner 5.
[0013] Thus, eccentric information is memorized to the wave store circuit 7, and storage information is not concerned with a RIAIRU time at ON of read-out truck servo circuit 3 **, and OFF, but he is trying to always add an amendment current in the conventional eccentric amendment circuit. The optical-magnetic disc equipment which substitutes the playback for elimination, writing, and a write-in check (Verify read) for disk 1 rotation using two or more beams is developed on the other hand in recent years.

[0014] Such optical-magnetic disc equipment is equipped with two lens actuator 2a and 2bs as shown in

drawing 4 . Objective lenses 27 and 28 are formed in lens actuator 2a and 2b, an objective lens 26 irradiates the elimination beam 11 from the fixed optical network 28 at an optical disk 10, and the objective lens 27 is irradiating the write-in beam 12 and the playback beam 13 at the optical disk 10.
[0015] Lens actuator 2a and 2b are carried in carry SHIJJI 31 of the migration optical system 30 with revolving shafts 29a and 29b, and are movable in the direction of the diameter of a disk with a VCM positioner. Moreover, a motion of lens actuator 2a and 2b is detected by position sensors 4a and 4b.
[0016]
[Problem(s) to be Solved by the Invention] However, as shown in drawing 4 , when two lens actuator 2a and 2bs are prepared in an optical head, in the state of the on-truck with which the core of an objective lens 26 is located on a truck, as shown in drawing 5 , lens bitter taste tutor 2a and 2b will be in the condition inclined from the center valve position, direct-current-offset rides on a location detecting signal from position sensors 4a and 4b, and the eccentric detecting signal containing direct current offset is memorized in the wave store circuit 7 of drawing 3 . Since the revolving shafts 29a and 29b of lens actuator 2a and 2b shift in assembly tolerance, this offset is generated.
[0017] For this reason, since an eccentric detecting signal had offset, when an eccentric detecting signal was read from the wave store circuit 7, eccentric amendment was being performed, and control which on-truck drawing in is barred by offset at the time of seeking, and the seeking engine performance falls, and always removes offset in an on-truck servo joined a lens actuator and turned off a truck servo, the problem which an optical head positioner runs in the offset direction was.
[0018] On the other hand, if a track jump is performed so that lens actuator 2a or 2b shown in drawing 5 at the time of ON of the truck servo circuit 3 may serve as a center valve position (the detecting signal of position sensors 4a or 4b is zero) in case an eccentric detecting signal is memorized, an eccentric detecting signal without offset is memorizable. However, in order to have obtained the eccentric detecting signal without offset by the track jump, the adjustment time amount for about several seconds was taken, eccentric information was usually written in by the start command or the go home command, but when offset adjustment was performed each time, there was a problem that command execution time amount will become long and the equipment engine performance will fall.
[0019] This invention was made in view of such a trouble, and aims at offering the eccentric amendment circuit of the optical disk unit which can perform simply eccentric amendment which removed the effect of the direct-current-offset included in eccentric detection information.
[0020]
[Means for Solving the Problem] Drawing 1 is the principle explanatory view of this invention. A truck servo means 3 for this invention to drive first the actuator 2 carried in the optical head 1 based on the truck error signal, and to control a beam in an on-truck location, The positional-servo means 6 which drives a positioner 5 based on the location detecting signal of the actuator 2 detected by the position sensor 4, and carries out position control of said optical head 1, A wave storage means 7 to memorize the eccentric detecting signal for the disk 1 rotation outputted from the location sensor 4 by the on-truck control state by the truck servo means 3 synchronizing with disk rotation, It is aimed at the eccentric amendment circuit of the optical disk unit equipped with an amendment means 8 to amend the eccentric detecting signal memorized for the wave storage means 7 in addition to the positioner driving signal of the positional-servo means 6 so that a part for read-out and the detected eccentricity may be offset synchronizing with disk rotation.
[0021] If it is in the 1st invention of this application per eccentric amendment circuit of such an optical disk unit, it is characterized by establishing the AC-coupling means 9 which removes the direct-current-offset component of the eccentric information signal read from the wave storage means 7, and is added to the positional-servo means 6. Moreover, if it is in the eccentric amendment circuit as the 2nd invention of this application, it is characterized by establishing the AC-coupling means 9 which removes a part for the direct current offset contained in the eccentric information signal outputted from a position sensor 4, and the wave storage means 6 is made to memorize.
[0022] Even if it is in any of the 1st and 2nd invention here, the amendment means 8 performs eccentric amendment at the time of the on-truck control by the truck servo means 3, and the seeking control by the

positional-servo means 6. Moreover, an optical head irradiates 3 beams at coincidence at an optical disk, uses one beam as the elimination beam 11, uses other one beam as the write-in beam 12, uses one beam of further others as the playback beam 13, and performs playback for elimination, writing, and a write-in check by disk 1 rotation.

[0023]

[Function] According to the eccentric amendment circuit of the optical disk unit by this invention equipped with such a configuration, the direct-current-offset component which reads the memorized eccentric detecting signal and is contained in the eccentric detecting signal by things by the AC-coupling means in addition to the positioner driving signal of a positional-servo means is removable, and eccentric amendment with a high precision can be performed in an easy circuit, without needing the offset amendment by the truck servo means or the positional-servo means.

[0024] Moreover, the eccentric detecting signal which does not contain direct current offset can be memorized, and compared with the offset removal by the VCM positioner, it is easy, and the processing time of information incorporation is also short and can be managed with letting an AC-coupling means pass, in case an eccentric detecting signal is memorized.

[0025]

[Example] Drawing 2 is the example block diagram having shown one example of this invention. In drawing 2 , 1 is an optical head and is prepared in the direction of the diameter of a disk by the VCM positioner 5 free [migration] to the optical disk 10 which rotates with a spindle motor 14. As shown in drawing 4 , it is specifically divided into the fixed optical system 28 and the migration optical system 30 carried in carriage 31, and the carriage 31 of the migration optical system 30 is moved in the direction of the diameter of a disk by the VCM positioner 5.

[0026] Moreover, as shown in drawing 4 , two lens actuator 2a and 2bs are prepared in the optical head 1 free [rotation] with revolving shafts 29a and 29b, and objective lenses 26 and 27 are formed in each of lens actuator 2a and 2b. From the fixed optical system 28, three beams, the elimination beam 11, the write-in beam 12, and the playback beam 13, are irradiated, the elimination beam 11 passes along an objective lens 26, and the write-in beam 12 and the playback beam 13 pass along an objective lens 27. After the elimination beam 11 emits light to the optical power for elimination to the timing of the user area between ID signals preformatted into the truck of an optical disk 10 and goes up a magneto-optic-recording medium in instant to critical temperature, it eliminates by the cooling process by arranging the direction of a field in the direction decided by the external magnetic field.

[0027] Moreover, the write-in beam 12 emits light to the optical power for a store to the timing of a write data 1, for example, a bit, and the direction of a field is reversed by the exposure of the optical power for a store according the direction of a field which turned into the fixed direction by elimination to a bit 1. Furthermore, the playback beam 13 irradiates the beam of sufficiently low lead light power to the object for elimination, and the optical power for a store, receives the return light by the optical detector, and reproduces ID signal and user data.

[0028] Moreover, the optical detector which detects return light is prepared also about the elimination beam 11 and the write-in beam 12, and it enables it to reproduce ID signal from the light-receiving signal detected by each optical detector. Furthermore, the servo circuit which performs the luminescence control circuit of a laser diode, on-truck control, and position control corresponding to three beams, and also a focal circuit are prepared fundamentally again. However, since the galvanomirror prepared in the fixed optical system 28 about the playback beam 13 is driven and the current beam position is controlled, the circuit section of focal control which drives an objective lens 27 is not prepared.

[0029] Furthermore, to lens actuator 2a prepared in the carriage 31 of drawing 4 , and 2b, position sensors 4a and 4b are formed, and the location detecting signal of the magnitude to which a polarity is proportional to the amount which differed and moved is outputted according to the direction moved when the location detecting signal became a zero bolt in the center valve position of illustration and lens actuator 2a and 2b moved position sensors 4a and 4b. The photosensor using the light source slit and the optical detector as position sensors 4a and 4b can be used.

[0030] Moreover, lens actuator 2a and 2b are using the thing of the two-dimensional rocking mold

which can rotate centering on revolving shafts 29a and 29b with a truck coil, and can be driven to shaft orientations by the drive of a focal coil. Again with reference to drawing 2 , the truck servo circuit 3 is formed to the optical head 1, and at least the truck servo circuit 3 consists of a phase compensating circuit 15, a servo switch 16, and power amplification 17. The truck error signal TES detected using the optical detector which receives the return light of the beam from the optical disk 10 prepared in the optical head 1 to the phase compensating circuit 15 is inputted. This truck error signal TES is created for example, by the far field method (the push pull method).

[0031] If the servo switch 16 is turned on by MPU18, the truck servo circuit 3 will be in operating state, i.e., the ON state of a truck servo, if it is the truck error signal obtained from the return light of the elimination beam 11 which shows the truck error signal TES to 0, i.e., the lens actuator formed in the optical head 1 so that a beam might be located in a truck center, for example, drawing 4 , the coil of lens actuator 2a will be driven and on-truck control of the elimination beam 1 will be carried out.

[0032] Of course, if it is a truck error signal by the return light of the write-in beam 12, the truck coil of lens actuator 2b will be driven, and if it is the return light of the playback beam 13 further, the coil of the galvanomirror built in the fixed optical system 28 will be driven. To the optical head 1 of drawing 2 , the positional-servo circuit 6 is formed further. At least the positional-servo circuit 6 consists of the phase compensating circuit 19, the servo switch 20, a summation point 21, power amplification 22, and also DA converter 25. The location detecting signal LPOS from the position sensor which detects a motion of the lens actuator formed in the optical head 1 is inputted into the phase compensating circuit 19.

[0033] For example, if it is the positional-servo circuit of the network of the elimination beam 11 of drawing 4 , the location detecting signal from position-sensor 4a will input, and if it is the positional-servo circuit of the network of the write-in beam 12, the location detecting signal from position-sensor 4b will input. Power amplification of the location detecting signal to which phase compensation was given in the phase compensating circuit 19 is carried out with power amplification 22 through the servo switch 20 and a summation point 21, and it drives the VCM positioner 5.

[0034] If the servo switch 20 is turned on by MPU18, supposing the positional-servo circuit 6 will be in operating state, i.e., a positional-servo ON state, and other signals have not joined a summation point 21, carriage 31 ** will be controlled by the VCM positioner 5 to maintain lens actuator 2a or 2b in a center valve position, as shown in drawing 4 to set to 0 the detecting signal of the position sensor prepared in the optical head 1.

[0035] The rate error signal acquired from MPU18 as deflection of a setting rate and whenever [real velocity] is set up in the case of positioner seeking, and DA converter 25 controls the speed in the optical head 1 by the VCM positioner 5 by adding this rate error signal to a summation point 21. If it is in the example of drawing 2 in order to amend the truck eccentricity of an optical disk 10, the wave store circuit 7, the phase compensating circuit 23, the servo switch 24, and the AC-coupling circuit 9 are formed. Here, the phase compensating circuit 23 and the servo switch 24 constitute the amendment circuit 8.

[0036] The wave store circuit 7 writes in the eccentric detecting signal for disk 1 rotation of an optical disk 10 synchronizing with a spindle motor synchronous clock, asserts the write enable signal WE by activation of the start command in MPU18, or a go home command, and performs storage actuation. It writes in the wave store circuit 7 by making into an eccentric detecting signal the location detecting signal LPOS obtained from the position sensor of the optical head 1 where MPU18 turned on the servo switch 16 of the truck servo circuit 3 in coincidence at this time and the servo switch 20 of the positional-servo circuit 6 is made off.

[0037] That is, the truck which makes the positional-servo circuit 6 off, carries out halt immobilization of the optical head 1 at a position, turns on the truck servo circuit 3 in this condition, and is carrying out eccentricity of the beam is made to follow, and the location detecting signal LPOS turns into an eccentric detecting signal by detecting a motion of the lens actuator accompanying beam flattery by the position sensor, and it comes to write this in the wave store circuit 7 [the time amount for disk 1 rotation] synchronizing with the synchronous clock of a spindle motor.

[0038] If the writing of the eccentric detecting signal to the wave store circuit 7 is completed, MPU18

will cancel assertion of the write enable signal WE, and, for this reason, the eccentric detecting signal for disk 1 rotation will be repeatedly read synchronizing with the synchronous clock of a spindle motor 14 from the wave store circuit 7. At least the eccentric detecting signal read from the wave store circuit 7 receives as same the phase compensation as the phase compensating circuit 19 as that of the positional-servo circuit 6 in the phase compensating circuit 23, and at this time, since the servo switch 24 is turned on by MPU18, it is supplied to the AC-coupling circuit 9 through the servo switch 24.
[0039] Here, the erection offset component is contained in the eccentric detecting signal memorized in the wave store circuit 7 according to lens actuator 2a in the on-truck condition shown in drawing 5 , and the inclination from the center valve position of 2b. The AC-coupling circuit 9 removes the direct current offset component contained in the eccentric detecting signal read from the wave store circuit 7, and supplies it at the summation point 21 of the positional-servo circuit 6, and eccentric amendment is performed by adding to the positioner driving signal over the VCM positioner 5.
[0040] A capacitor or a high-pass filter is used as an AC-coupling circuit 9. What is necessary is just to set up the low-pass cut property which cuts the low-pass component below the lowest frequency component of an eccentric detecting signal, when a high-pass filter is used. It is dependent on the rotational frequency of the optical disk 10 by the spindle motor 14, for example, if the lowest frequency of this eccentric detecting signal is 2400rpm, it is 40Hz and 3600rpm and it is 60Hz and 4800rpm, it will be set to 80Hz, and it should just use a high-pass filter with the frequency barrier property which cuts the frequency component below these lowest frequency.
[0041] The addition in the summation point 21 of the positional-servo circuit 6 should just add simply the eccentric detecting signal which removed the direct-current-offset component to the location detecting signal LPOS. The VCM positioner 5 will move the optical head 1 by the eccentricity of a truck by addition of this eccentric detecting signal, by the motion according to the eccentricity of the optical head 1 whole, as shown in drawing 4 , lens actuator 2a on carriage 31 and 2b are always maintaining the center valve position, and the condition that there is no truck eccentricity substantially can be realized on the optical head 1.
[0042] For this reason, a truck eccentricity component does not join on-truck control of the beam by the truck servo circuit 3 as disturbance, but high on-truck control of precision can be performed. Moreover, if it is at the time of positioner seeking, it can position in a target truck correctly by the completion of seeking, and level-luffing-motion actuation to the target truck at the time of the completion of seeking can be performed promptly.
[0043] Furthermore, since offset amendment by lens actuator 2a as showed the servo switch 16 of the truck servo circuit 3 to drawing 5 in the state of the on-truck also as an OFF state from the ON state, and the 2b itself is not performed, even if it turns off a truck servo, lens actuator 2a and 2b have stopped at the center valve position, and can prevent beforehand the problem which an optical head positioner runs in the offset direction in OFF of a truck servo like before.
[0044] In addition, although the direct-current-offset component is removed in the AC-coupling circuit 9 in case the eccentric detecting signal read from the wave store circuit 7 is added to the positional-servo circuit 6 if it is in the above-mentioned example In case the AC-coupling circuit 9 is established in the input side of the location detecting signal LPOS from a position sensor prepared in the optical head 1 to the wave store circuit 7 as other examples corresponding to the 2nd invention of this application and it memorizes to the wave store circuit 7, a direct-current-offset component is removed beforehand and you may make it fear it an account.
[0045] In addition, although the above-mentioned example took for the example the case where two lens actuators were used by 3 beam methods of elimination, a store, and playback, even if it is 2 beam methods of an elimination beam, a playback beam or a write-in beam, and a playback beam, it is completely applicable [example] about the case where two lens actuators are used, similarly.
[0046]
[Effect of the Invention] When eccentric amendment which does not have the effect of direct current offset according to this invention can be performed, stabilization of the seeking engine performance and highly precise-ization of on-truck servo control can be attained, as explained above, and a truck servo is

turned off further, it can prevent certainly that an optical head moves in the offset direction by the positioner.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] The principle explanatory view of this invention
[Drawing 2] The example block diagram of this invention
[Drawing 3] The explanatory view of the conventional circuit
[Drawing 4] The explanatory view of the optical head of 3 beam methods
[Drawing 5] The offset explanatory view of a position sensor produced at the time of the on-truck of 3 beam methods
[Description of Notations]
1: Optical head
2: Actuator
2a, 2b: Lens actuator
3: Truck servo means (truck servo circuit)
4, 4a, 4b: Position sensor
5: POSHISESHONA (VCM positioner)
6: Positional-servo means (positional-servo circuit)
7: Wave storage means (wave store circuit)
8: Amendment means
9: AC-coupling means (AC-coupling circuit)
10: Optical disk
11: Elimination beam
12: A write-in beam
13: Playback beam
14: Spindle motor
At least 15, 19, and 23: are a phase compensating network.
16, 20, 24: Servo switch
17 22: Power amplification
18:MPU
21: Summation point
25: DA converter
26 27: Objective lens
28: Fixed optical system
29a, 29b: Revolving shaft
30: Migration optical system
31: Carriage

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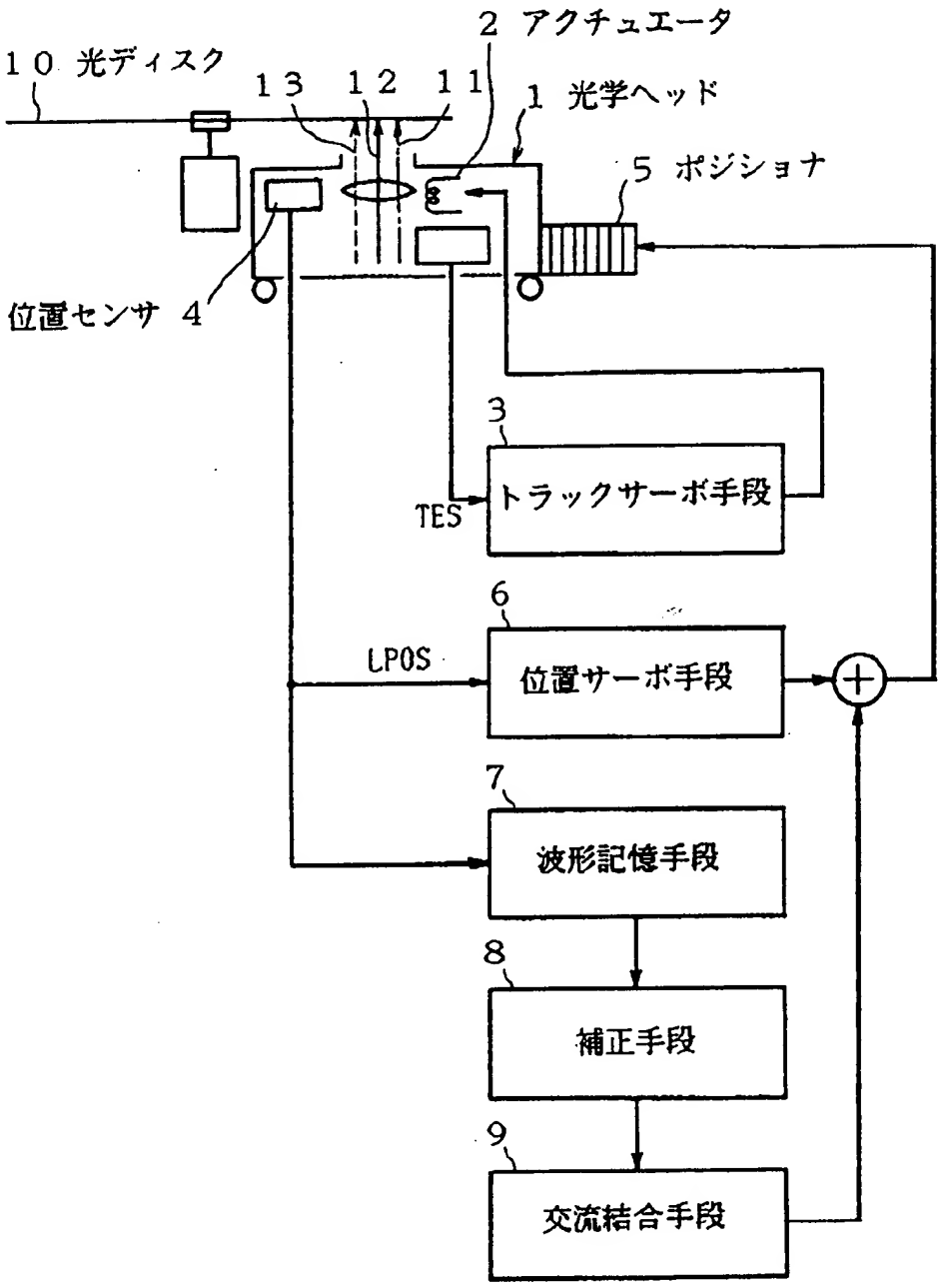
DRAWINGS

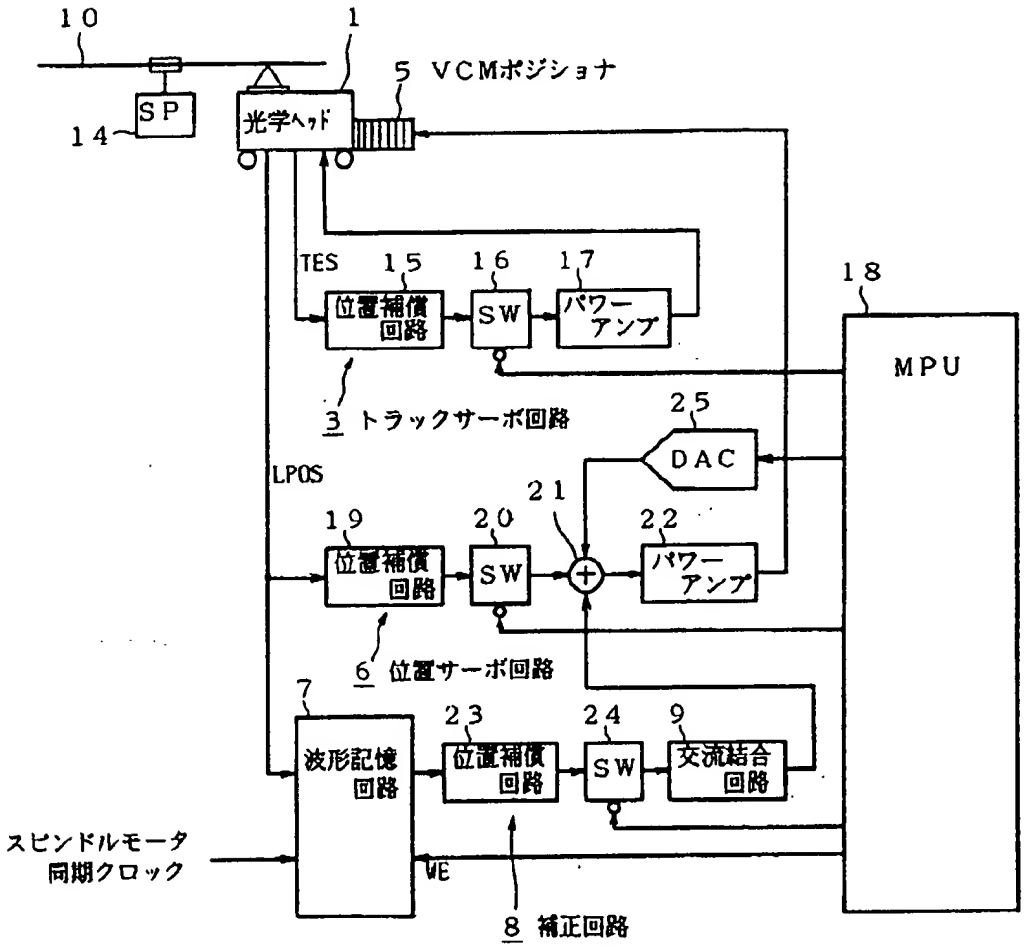
[Drawing 1]

本発明の原理説明図



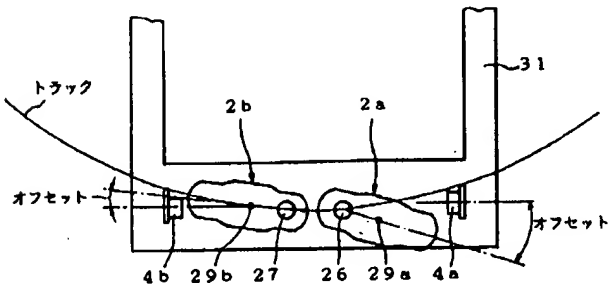
[Drawing 2]

本発明の実施例構成図



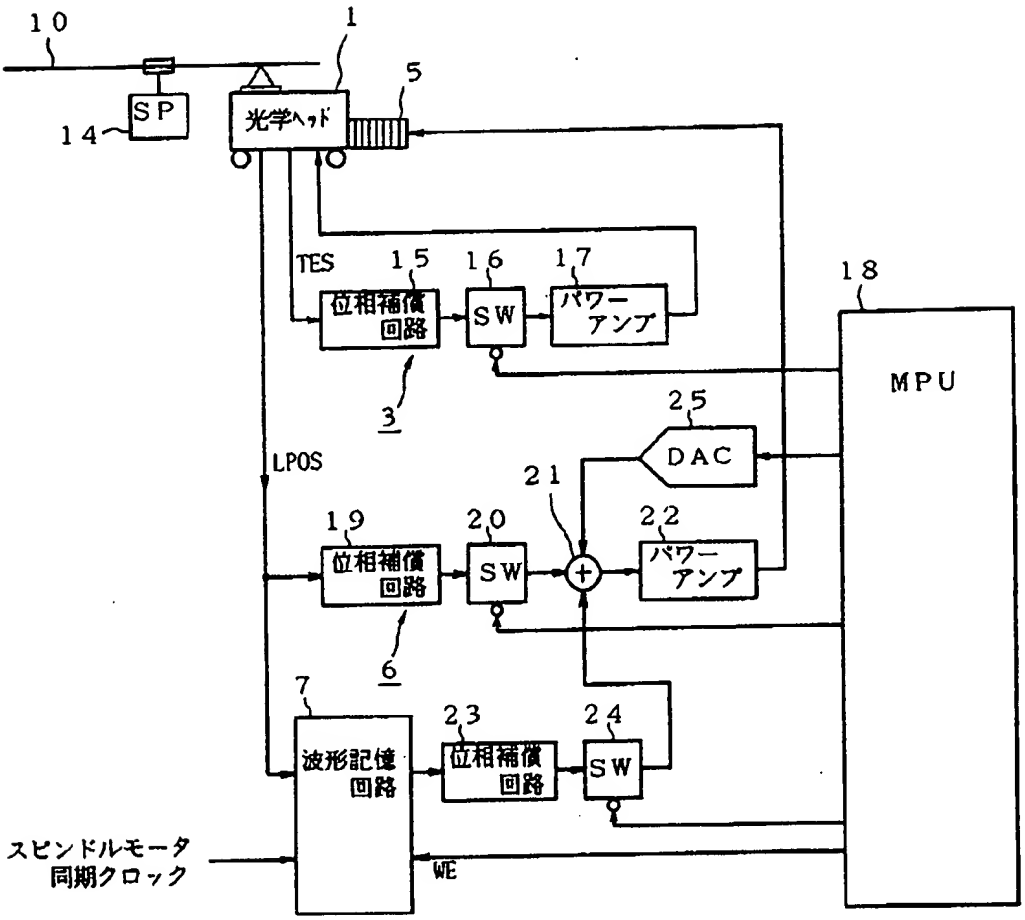
[Drawing 5]

3ビーム方式のオントラック時に生ずる位置センサのオフセット説明図



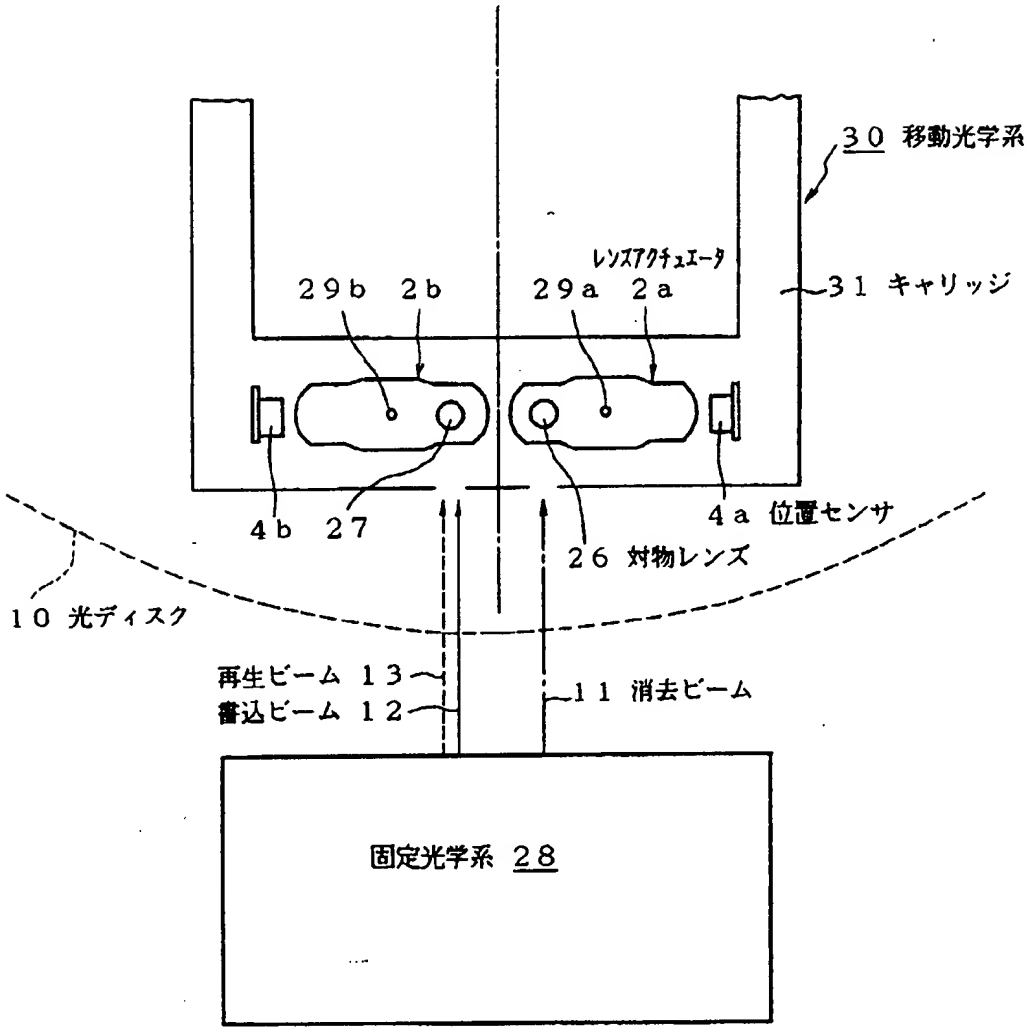
[Drawing 3]

従来回路の説明図



[Drawing 4]

3ビーム方式の光学ヘッドの説明図



[Translation done.]